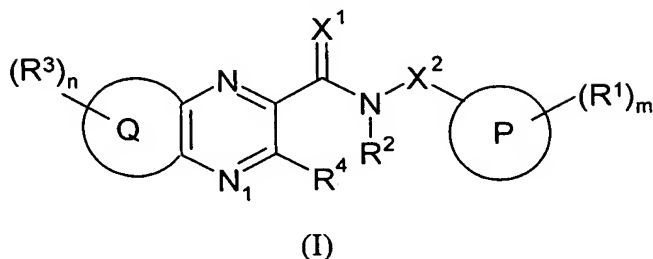


CLAIMS

1. A compound having the formula I



wherein:

X¹ is O or S;

X² is a bond or C₁₋₃alkyl;

P is C₃₋₇cycloalkyl or C₄₋₇cycloalkenyl;

R¹ is hydrogen, C₁₋₆alkyl, cyano, halogen and C₁₋₆alkylhalo, and one or more R¹ may be connected to each other or to one of the atoms that constitutes P to form a bridge or spirocyclo;

R² is hydrogen, C₁₋₃alkyl, fluoromethyl, difluoromethyl, trifluoromethyl, methoxy, fluoromethoxy, difluoromethoxy, trifluoromethoxy, C₀₋₃alkylamino, C₀₋₃alkylhydroxy or C₀₋₃alkyldimethylamino;

R⁴ is hydrogen, C₁₋₃alkyl, fluoromethyl, difluoromethyl, trifluoromethyl, methoxy, fluoromethoxy, difluoromethoxy, trifluoromethoxy, C₀₋₃alkylamino, C₀₋₃alkylhydroxy or C₀₋₃alkyldimethylamino;

Q is a ring containing 4, 5, 6 or 7 atoms independently selected from C, S, O and N, which may be saturated or partially unsaturated and said ring may further contain groups independently selected from SO, SO₂, CO, cyano and CS;

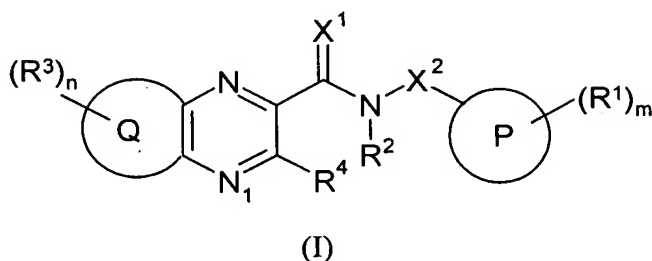
R³ is hydrogen, hydroxy, halogen, nitro, cyano, OC₁₋₃alkylhalo, C₁₋₃alkylhalo, C₁₋₃alkyl, C₁₋₃alkoxyC₀₋₃alkyl, C₀₋₃alkylOC₂₋₄alkanol, C₁₋₃alkanol, amino, C₁₋₃alkylaminoC₀₋₃alkyl, (C₁₋₃alkyl)₂aminoC₀₋₃alkyl, amide, C₁₋₃alkylamideC₀₋₃alkyl or (C₁₋₃alkyl)₂amideC₀₋₃alkyl;

n is 0, 1, 2, 3 or 4; and

m is 0, 1, 2, 3 or 4;

or N₁-oxides, salts, solvates or solvated salts thereof.

2. A compound having the formula I



wherein:

X^1 is O or S;

X^2 is a bond or C_{1-3} alkyl;

P is C_{3-7} cycloalkyl or C_{4-7} cycloalkenyl;

R^1 is hydrogen, C_{1-6} alkyl, cyano, halogen and C_{1-6} alkylhalo, and one or more R^1 may be connected to each other or to one of the atoms that constitutes P to form a bridge or spirocyclo;

R^2 is hydrogen, C_{1-3} alkyl, fluoromethyl, difluoromethyl, trifluoromethyl, methoxy, fluoromethoxy, difluoromethoxy or trifluoromethoxy;

R^4 is hydrogen;

Q is a ring containing 4, 5, 6 or 7 atoms independently selected from C, S, O and N, which may be saturated or partially unsaturated and said ring may further contain groups independently selected from SO, SO_2 , CO, cyano and CS;

R^3 is hydrogen, hydroxy, halogen, nitro, OC_{1-3} alkylhalo, C_{1-3} alkylhalo, C_{1-3} alkyl,

C_{1-3} alkoxy C_{0-3} alkyl, C_{1-3} alkanol, cyano, amino or amide;

n is 0, 1, 2, 3 or 4; and

m is 0, 1, 2, 3 or 4;

or N_1 -oxides, salts, solvates or solvated salts thereof.

3. The compound according to any one of claims 1 or 2, wherein P is C_{3-7} cycloalkyl substituted with one or more R^1 , wherein R^1 is hydrogen, C_{1-6} alkyl, cyano, halogen or C_{1-6} alkylhalo, and one or more R^1 may be connected to each other or to one of the atoms that constitutes P to form a bridge or spirocyclo.

4. The compound according to claim 3, wherein P is C₅₋₇cycloalkyl substituted with one or more R¹, wherein R¹ is methyl.

5. The compound according to any one of claims 1 to 4, wherein X¹ is oxygen.

5

6. The compound according to any one of claims 1 to 5, wherein X² is a bond.

7. The compound according to any one of claims 1 to 6, wherein R² is hydrogen.

10

8. The compound according to any one of claims 1 to 7, wherein R⁴ is hydrogen or methyl.

9. The compound according to any one of claims 1 to 8, wherein Q is a ring containing 5, 6 or 7 atoms independently selected from C, O and N, which may be saturated or partially unsaturated.

15

10. The compound according to any one of claims 1 to 9, wherein R³ is hydrogen, hydroxy, halogen, cyano, C₁₋₃alkyl or C₁₋₃alkoxyC₀₋₃alkyl.

20

11. The compound according to any one of claims 1 to 10 having a trans-relationship between R¹ and X² on ring P, when P is cyclohexane and R¹ and X² is attached to P at position 4 and 1 respectively.

12. The compounds

N-(trans-4-methylcyclohexyl)-5,6,7,8-tetrahydroquinoxaline-2-carboxamide,

25

N-(4,4-dimethylcyclohexyl)-5,6,7,8-tetrahydroquinoxaline-2-carboxamide,
or salts, solvates or solvated salts thereof.

13. The compounds

N-(4,4-dimethylcyclohexyl)-3-methyl-5,6,7,8-tetrahydroquinoxaline-2-carboxamide,

30

8-methyl-N-(trans-4-methylcyclohexyl)-5,6,7,8-tetrahydroquinoxaline-2-carboxamide,
7-hydroxy-5,7-dimethyl-N-(trans-4-methylcyclohexyl)-6,7-dihydro-5H-cyclopenta[b]pyrazine-2-carboxamide,

N-(trans-4-methylcyclohexyl)-6,7,8,9-tetrahydro-5H-cyclohepta[b]pyrazine-2-carboxamide,

7-methyl-N-(trans-4-methylcyclohexyl)-5,6,7,8-tetrahydroquinoxaline-2-carboxamide,

6-methyl-N-(trans-4-methylcyclohexyl)-5,6,7,8-tetrahydroquinoxaline-2-carboxamide,

5 N-(trans-4-methylcyclohexyl)-6,7-dihydro-5H-cyclopenta[b]pyrazine-2-carboxamide,

N-(trans-4-methylcyclohexyl)-7,8-dihydro-5H-pyrano[3,4-b]pyrazine-2-carboxamide,

N-(trans-4-methylcyclohexyl)-7,8-dihydro-5H-pyrano[3,4-b]pyrazine-3-carboxamide,

7-hydroxy-N-(trans-4-methylcyclohexyl)-5,6,7,8-tetrahydroquinoxaline-2-carboxamide,

6-hydroxy-N-(trans-4-methylcyclohexyl)-5,6,7,8-tetrahydroquinoxaline-2-carboxamide,

10 N-(4,4-dimethylcyclohexyl)-5,6,7,8-tetrahydroquinoxaline-2-carboxamide 4-oxide and

6,7-dimethyl-N-(4-methylcyclohexyl)-6,7-dihydro-5H-cyclopenta[b]pyrazine-2-

carboxamide,

or salts, solvates or solvated salts thereof.

15 14. A pharmaceutical composition comprising as active ingredient a therapeutically effective amount of the compound according to any one of claims 1 to 13, in association with one or more pharmaceutically acceptable diluent, excipients and/or inert carrier.

15. The pharmaceutical composition according to claim 14, for use in the treatment of
20 Group I mGluR mediated disorders.

16. The compound according to any one of claims 1 to 13, for use in therapy.

17. The compound according to any one of claims 1 to 13, for use in treatment of Group I
25 mGluR mediated disorders.

18. Use of the compound according to any one of claims 1 to 13, in the manufacture of a medicament for the treatment of Group I mGluR mediated disorders.

30 19. A method of treatment of Group I mGluR mediated disorders, comprising administering to a mammal, including man in need of such treatment, a therapeutically effective amount of the compound according to any one of claims 1 to 13.

20. The method according to claim 19, for use in treatment of neurological disorders.

21. The method according to claim 19, for use in treatment of psychiatric disorders.

5

22. The method according to claim 19, for use in treatment of chronic and acute pain disorders.

23. The method according to claim 19, for use in treatment of gastrointestinal disorders.

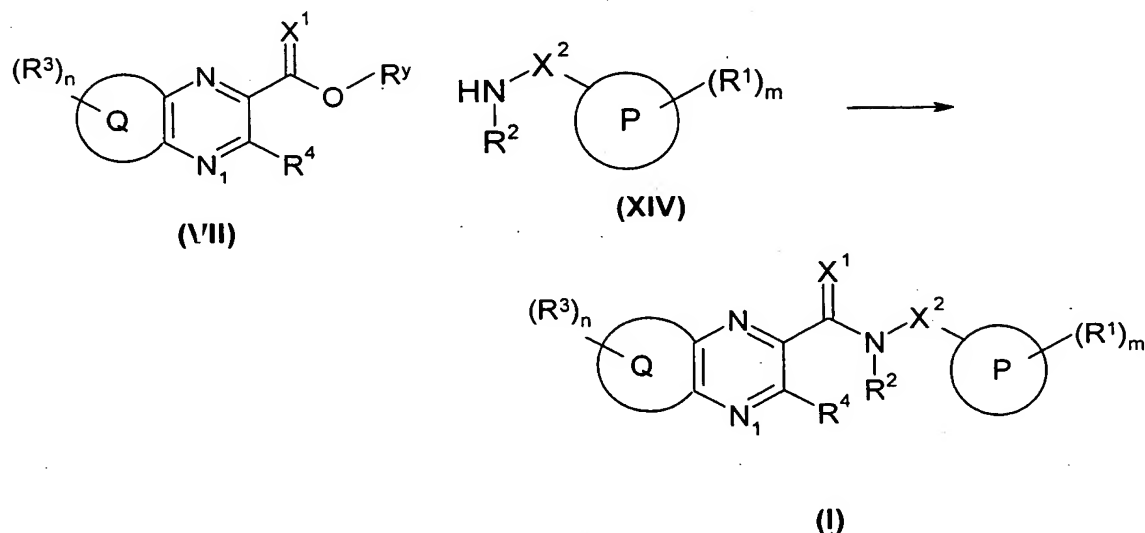
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24. A method for inhibiting activation of Group I mGluR receptors, comprising treating a cell containing said receptor with an effective amount of the compound according to claim 1 or 2.

15

25. Processes for the preparation of the compound according to claim 1 or 2, wherein P, Q, X^1 , X^2 , R^1 , R^2 , R^3 , R^4 , m and n are, unless otherwise specified, defined as in formula I, comprising of:

A

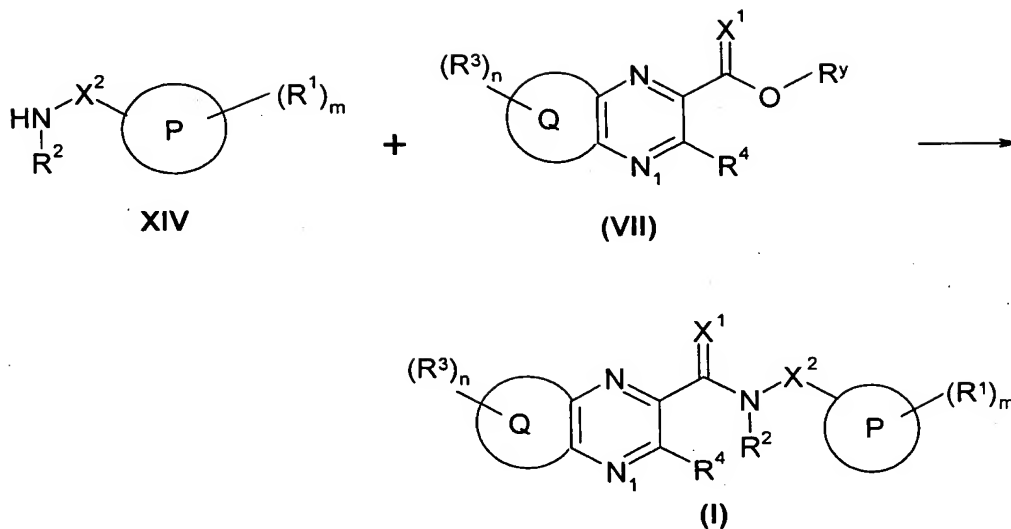


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reacting a compound of formula VII, wherein R^y is H, with an activating agent followed by the treatment of the resulting acid halide, or otherwise to nucleophiles activated acid derivative, with an amine of formula XIV, to obtain the compound of formula I,

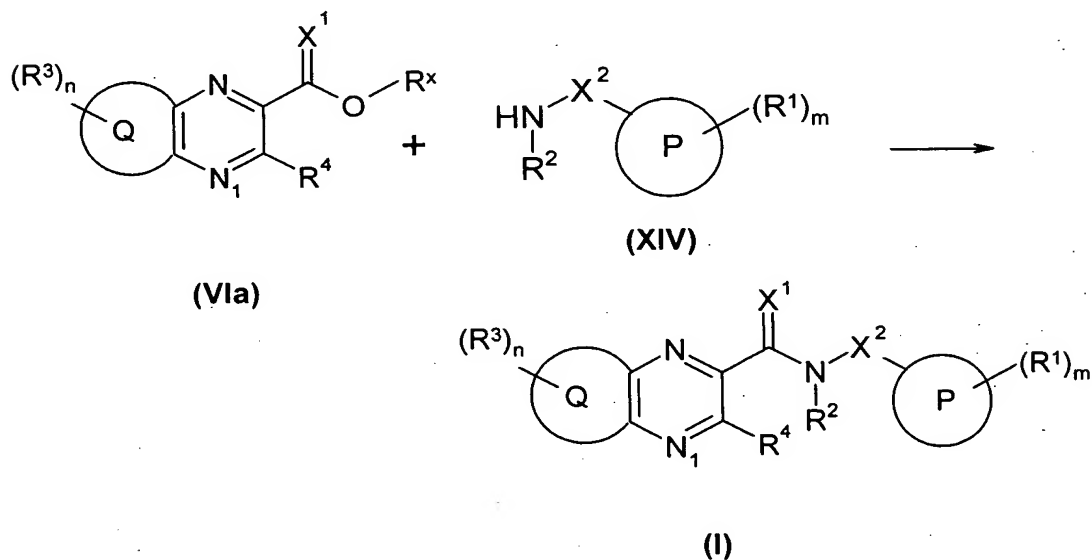
alternatively,

B



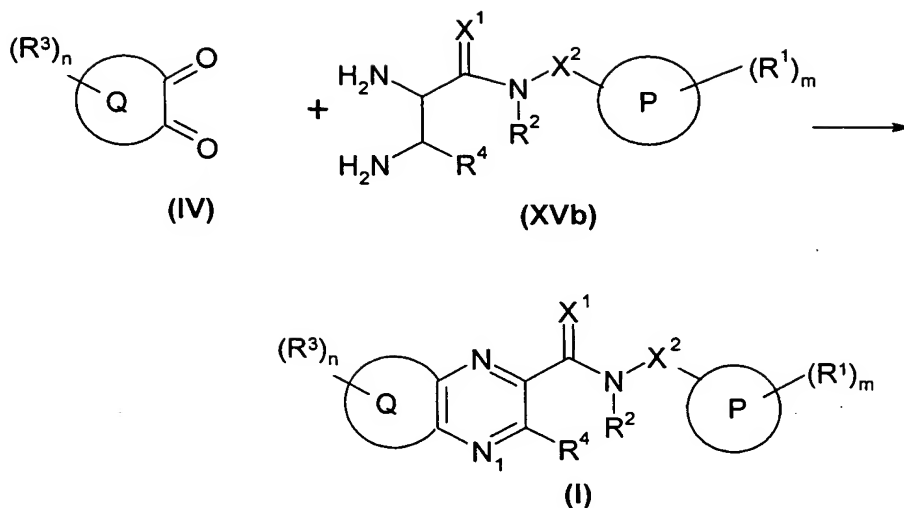
reacting an amine of formula XIV with the compound of formula VII, wherein R^y is H, to
 5 obtain the compound of formula I, or

C



reacting a compound of formula VIa or the N_1 -oxide thereof, wherein R^x is
 C_{1-6} alkyl, with the appropriate amine such as the compound of formula XIV, to obtain the
 10 compound of formula I,
 or,

D



direct condensation of intermediates of formula IV and XVb, to obtain the compound of formula I.

5

26. Compounds

5,6,7,8-tetrahydro-quinoxaline-2-carboxylic acid methyl ester and
5,6,7,8-tetrahydro-quinoxaline-2-carboxylic acid.

27. Compounds

3-methyl-5,6,7,8-tetrahydro-quinoxaline-2-carboxylic acid ethyl ester,
3-methyl-5,6,7,8-tetrahydro-quinoxaline-2-carboxylic acid,
2,3-diamino-N-(4-methyl-cyclohexyl)-propionamide,
4-(tert-butyl-diphenyl-silanyloxy)-cyclohexane-1,2-dione,
6,7-dimethyl-6,7-dihydro-5H-cyclopentapyrazine-2-carboxylic acid methyl ester,
5,6,7,8-tetrahydro-quinoxaline-2-carboxylic acid methyl ester and
5,6,7,8-tetrahydro-quinoxaline-2-carboxylic acid.

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28. The compounds according to claims 26 and 27, for use as an intermediate in the
preparation of the compound according to claim 1.

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